

APPENDIX E

Proposed Environmental Justice Protocols and Methodologies

ENVIRONMENTAL JUSTICE PROTOCOL

Proposed by Public Interest Law Center of Philadelphia

October 1, 1998

INTRODUCTION

Title VI of the Civil Rights Act of 1964, 42 U.S.C. §2000d (Section 601) prohibits recipients of federal financial assistance from discriminating against persons because of race, color or national origin. Thus, state agencies such as the Pennsylvania Department of Environmental Protection (DEP) are subject to the requirements of Title VI.

Title VI also authorizes federal agencies, such as the Environmental Protection Agency (EPA) to promulgate regulations designed to prevent such discrimination. 42 U.S.C. §2000 d-1 (Section 602).

Pursuant to Section 602, the EPA in 1984 promulgated Title VI regulations. 40 CFR §7.01 et seq. Unfortunately, they were only procedural in nature and did not include any guidance for determining whether particular actions of a recipient of EPA funds constituted violations of the Civil Rights law.

Environmental injustice has been recognized as a national problem for more than 20 years but it was not until February, 1994 that the President issued an Environmental Justice Executive Order requiring the EPA and other federal government agencies to develop programs to overcome environmental injustice in minority and low income communities. And EPA required another four (4) years, until February, 1998, to publish its "*Interim Guidance for Investigating Title VI Administrative Complaints Challenging Permits*" (Interim Guidance).

In 1998 the EPA has organized an Implementation Advisory Committee (IAC) representing stake holders from across the country to make recommendations for improving the Interim Guidance. The Public Interest Law Center of Philadelphia (Law Center) presented comments on the *Interim Guidance* to the IAC at its first meeting in May 18, 1998 in Arlington, VA. The Law Center noted that the EPA's *Interim Guidance* was very complex and included many factors open to conflicting opinion for the Guidance to serve as a useful tool for advancing

environmental justice. The EPA's investigation of the proposed Shintech facility in Louisiana illuminates their complexity.

In an attempt to provide constructive assistance to the IAC, the Law Center presented a substitute Protocol for IAC's consideration. Since the IAC's meeting of May 18th, the Law Center has presented its substitute Protocol at numerous meetings including meetings of the Pennsylvania Department of Environmental Protection (DEP) and the Philadelphia City Solicitors Office.

In contrast to the EPA's *Interim Guidance* which is based on complex disparate cumulative impact analysis, the Law Center's substitute Protocol is based on a comparative public health analysis utilizing official state public health data.

It is well recognized that residents of minority and low-income communities suffer from substandard public health. This was recognized in the President's Executive Order of February 1994. The Law Center's substitute Protocol is designed to protect all substandard communities from polluting facilities thereby fulfilling the purposes of environmental health protection law and civil rights law.

The substitute Protocol requires the pollution control permitting agency to promulgate regulations that would make civil rights protection an intrinsic part of the permit application review process. Such a requirement would greatly reduce the number of civil rights complaints to the EPA after the issuance of pollution control permits.

And the substitute Protocol empowers the local community to override the permit prohibition through the use of a local referendum financed by the permit applicant, affording local residents control of community development.

Over the past few months the Law Center has presented its substitute Protocol to numerous audiences and has received some very positive feedback. The substitute protocol (Environmental Justice Proposal) attached reflects the constructive comments presented to the Law Center.

ENVIRONMENTAL JUSTICE PROTOCOL

Public Interest Law Center of Philadelphia

Draft 2/8/99

INTRODUCTION

The Public Interest Law Center of Philadelphia (Law Center) herein presents a Draft of an Environmental Justice Protocol for use by the EPA and by State environmental protection agencies to determine whether proposed permit applications are in compliance with the Civil Rights Act of 1964, Title VI and with the goals of environmental justice.

This is a Draft. It is recognized that adjustments will be needed in response to comments and suggestions, all of which are welcome.

1. No State or local environmental protection agency which receives federal financial assistance shall grant a pollution control permit to construct or operate a new facility or to enlarge an existing facility in any Affected area where the Public Health of the residents is determined to be Substandard; except that such prohibition may be overridden by a referendum of the residents of the Affected area (see paragraph 7).

2. The Affected area of a proposed new facility or of a proposed enlargement of an existing facility shall be the area within a circle of radius _____ (Distance) except that the radius shall be increased so that the Affected area contains a minimum of () residents.

The center of the circle shall be the center of the property owned or leased by the permit applicant for the operation of the proposed facility.

3. The Public Health of residents of a geographical area shall be determined from the records of state or local health departments for the five (5) year period preceding the time of the permit application and the most recent records published by the U.S. Census Bureau.

4. The following factors shall be used to determine the Public Health of residents of any geographical area:

- a. Age adjusted mortality rates per 100,000 population;
- b. Age adjusted cancer mortality rates per 100,000 population
- c. Infant mortality rates per 1000 live births
- d. Low Baby Birth Weight Rate (under 2500 grams) per 1000 live births

5. Standard Public Health shall be determined from the health factors for the population of the entire state or county in which the Affected area exists.

6. The Affected area shall be deemed to have Substandard Public Health when there is a deviation of at least (___ %) in (each, all) of the health factors in the Affected area as compared to the Standard Public Health.

7. Residents of an Affected area determined to be a Substandard Public Health area shall have the right to override a permit prohibition by a referendum, paid for by the permit applicant.

Stressed Communities: A New Model of Environmental Assessment

By Reginald Harris
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Background: Traditionally, the depletion of flora and fauna, and the degradation of natural systems (rivers, streams, etc.) are seen as signs that ecosystems are being stressed. These indicators are quite useful in determining if these ecosystems are being adversely impacted or "stressed". Actions are generally taken to protect stressed ecosystems as a result. Human ecosystems, communities, should be treated in the same manner. When communities show signs of stress, actions should be taken to see that no additional stresses are added, and that measures are adopted to see that the community (ecosystem) is not overburdened.

The Stressed Communities concept applies an ecosystem-like approach to the assessment of the human environment. Human health outcomes data are used as measures of the community's overall burden as compared to state, local, and national human health benchmarks.

We need to be able to answer the much asked question of how much burden borne by a given community is too much. We also need to have some benchmarks by which to judge our at-risk communities. The Stressed Communities Concept allows us to use available human health outcomes data as an instrument by which such assessment may be made. There is a critical need for us to be able to identify those communities that are already stressed or overburdened to a degree of significant concern. We need to be able to determine when those burdens borne by these at-risk communities have become overwhelming stresses. In other words, we need to know when our communities have had enough stress placed upon them and can take no more. Once we see that communities are overburdened or stressed as compared to national, regional and local benchmarks; we must be prepared to take appropriate actions to assure the protection of the community. These actions may require the development of a comprehensive approach utilizing a number of diverse stakeholders.

Use and Application:

The assessment methodology used for the Stressed Communities Model requires the accumulation of a number of types of human health outcomes data, all of which is available through healthcare agencies for use as benchmarks.

Key Uses:

- Priority setting
- Decision making (siting, permitting, targeting enforcement and compliance activities)
- Identifying issues of concern
- Setting course of action

Needs:

- **Assessment of availability of health outcomes data**

- **Collection of data**

- Age-adjusted Cancer Incidence Rates**
 - Age-adjusted Cancer Mortality Rates**
 - Disease Incidence rates**
 - Disease Mortality Rates**
 - Infant Mortality Rates**
 - Low infant birth weight data**
 - Other relevant data (Childhood Lead Poisoning)**

Recommended Actions:

- **Adoption of the Stressed Communities Concept by the Regional Office**
- **Formation of partnerships with other federal, state and local agencies with public health functions in order to obtain appropriate support to address concerns**
- **Collection and analysis of health outcomes data**
- **Survey of data gaps**
- **Establish appropriate linkages with public health and other appropriate agencies**

DISPARATE IMPACT TEST

While EPA and others have various methods under consideration to evaluate disparate impact, MACEJ would like to suggest the use of disparate impact tests to complement the various methodologies employed in assessing disparate impact. These impact tests will involve undertaking qualitative research by using various communities as samples to assess disparate impact.

The determination of sample size for any type of research study is one of the most critical factors in considering any environmental research. The critical nature of sampling is even further complicated by the fact that some forms of data collection lack scientific purity. This is the case when engaged in "observational" research - people observing other people and recording their findings. This is particularly true with the concept of environmental justice. It is thus important to ensure that data collected is accurate, reliable and consistent.

Factors to be used In Determining Sample:

- A modeling program, for example "Sample Estimator" should allow for the use of nominal (yes/no) or ordinal (1 to 5 Likert scale) data types. Since the crucial compliance measures are based on nominal data, that model will be used in determining sample size for this type of matched-pair study.
- Comparative aggregate data for minority and non-minority communities [or impacted and non-impacted communities] should be derived E.J studies conducted within communities over the last controlled time frame. Responses to a core set of criteria/indicators and questions should be averaged (un-weighted) for each community. E.J study should then aggregate the data, and review the communities' data. Data should indicate percentage of cases examined where there exists disparate treatment, pollution abatement measures, issuance of permits, etc., This variance, to be very meaningful, should not exceed percentage points higher than percentage of disparate between impacted and non-impacted communities.
- If the confidence interval for determining sample sizes is set at ninety-five percent (95%), then the model produces an estimate of the appropriate sample based on the assumption that ninety-five out of one hundred cases will reveal disparate treatment in the x percent (%) to y percent (%) range of the total population.

In this model there are two variables that will have an impact on the recommended community. The first is the population or universe. This is typically the number of individuals to be evaluated. The second is the variance in the anticipated rate of disparate treatment. While x percent is based on historical cases with current and past communities, a smaller percentage of larger variance used to adjust the sample size or reduce the variability of the confidence interval.

Many different research organizations typically apply many different tests of significance to community tabulations. For the purposes of our E.J. studies, we will consider data tabulation models. One applies to the averages of scales and other continuous variables such as community age, income, poverty levels, and race, etc. This test is commonly referred to as the t-test. Another test used is called the significance test of proportions is used for categorical responses such as a "yes" or "no" response. These two types of tests could form the basis for determining disparate treatment in impacted communities once an agreed set of criteria/indicators are decided upon.

The t-test can be used when the variable under consideration can be measured on a scale such as typical Likert scale ratings. This is the case for rating scales, which should show an average. In order to illustrate the meaning of the test, consider the following example. Respondents are asked to rate the quality of the air within their community on a scale of 1 to 5 where 1 is poor and 5 is excellent. Since this is a scale, it makes sense to add up all responses and divide by the number of responses to get the average, or mean. Generally, research is done to answer questions that are about groups of respondents. In the example, we might want to ask if minorities or non-minorities are more satisfied with the air quality or are they more or less at the same level of satisfaction.

Technically, the t-test is testing the (null) hypothesis that the averages of the two groups of respondents are equal. In this case the two groups represented are assumed to be equal. Any variation in the groups' averages can come from two sources. One source is the variability due to sampling. Whenever survey research is undertaken, a sample is used since doing a census is too costly or not possible. Sampling can introduce variation between columns because we may happen to survey more impacted communities than non-impacted communities even though the true population difference is small. The second source of variation to consider is the true differences between the groups. The question is, are the groups truly different, or are the differences explained by sampling variation. The t-test will determine if the difference between the two groups is statistically significant or not.

Significance Test of Proportions:

Generally, the methodology behind the t-test applies to the case of categorical data as well. The difference is one of data type. Since a categorical variable cannot be averaged, the t-test is not applicable. In this case, we use a significance test of proportions. The statistic generated has the same properties as the t-test, but is computed from the percentages of respondents answering a certain way, not from an average. This is the principle difference of the significance test of proportions from the t test. It appears on the database tabulations in the same manner as the t-test, but since it is dealing with categorical data, it is mathematically distinct. It is important to note this since an application of continuous variable testing techniques to categorical responses would be inappropriate. The test used is non-parametric in nature when it comes to categorical data.

The t-test and significance test of proportions are used to test whether observed differences are due to sampling variation or to true differences. E.J studies could be conducted at statistical tests at a 95% confidence interval, the industry standard. This

confidence interval is a measure of the reliability of the test. It is related to sampling variation in this manner; if an asterisk shows up indicating a statistically significant difference between two columns, we can be 95% confident the difference is due to true differences between the columns. Notice that 5% of the time we could be looking at differences caused by sampling error or chance.

In summary, future E.J. studies could use these two tests to determine disparate impact. The t-test is used when data is continuous or scaled in nature and it makes sense to average them. When data is categorical, the significance test of proportions is used. In each case, the columns of tabulation are being tested against each other. The assumption is that the columns are the same unless denoted with an asterisk and a number showing the column against which that column is significant. This test is carried out at the 95% confidence interval unless otherwise noted. This method of reporting makes it easy to find differences when there is a lot of data to cover and provides acceptable reliability for the observation of univariate differences.

See the examples of Community Health and Quality of Life Indicators Presented in the Community Health Handbook (NCL 1993) that could be used within the analysis of disparate impact within a community (see EHCR subcommittee recommendations, pg. 22). The recommendations include, adult and infant mortality rates, low birth weights, cancer stage at diagnosis, poverty level, race, unemployment rate, new dwellings, vacant homes, availability of child care and transit opportunities, crime statistics, admissions, air quality, health insurance, incidents of respiratory emergency admissions or occurrences, dumps, trash, etc.